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**A STUDY OF THE SPIDERS *DIPOENA ALTA* KEYSERLING,  
*D. LINEATIPES* BRYANT AND A NEW SPECIES *D. JAMESI*  
(ARANEAE: THERIDIIDAE)**

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ABSTRACT

A study of all the specimens of "*Dipoena alta* Keyserling" in the Museum of Comparative Zoology, Harvard University and the American Museum of Natural History, New York, reveals that *D. alta* probably comprises several species. *Dipoena lineatipes* Bryant is reestablished as a valid species, and a new species, *Dipoena jamesi*, is described. The numerous variations occurring in the three species are illustrated. Detailed cross-reference between the distribution records and the illustrated variations is given. This should facilitate future work on the further division of "*D. alta*" into separate species when additional material becomes available.

INTRODUCTION

During work on spiders from the Indian Ocean atoll of Aldabra, a species of *Dipoena* was discovered which appeared very close to *D. lineatipes* Bryant, as figured by Levi (1953, figs. 11-15, 120-121). Levi (1963) subsequently considered *D. lineatipes* to be a synonym of *D. alta* Keyserling, along with *Euryopsis lutea* Keyserling and *D. pallida* Chickering. (*D. pallida* Chickering, 1943, subsequently became *D. furtiva* Chickering in Roewer, 1951, as the name was preoccupied by *D. pallida* Emerton, 1913.)

It should be noted here that Keyserling's (1886) type specimen of the male *D. alta* was from Montaña de Nancho, Peru and was deposited in the Polish Academy of Sciences, Warsaw (PAS). Levi (1963) examined this specimen and synonymized it with *E. lutea* and the *D. alta* in the British Museum (Natural History) (BMNH), but I was quite unable to obtain it for study. Keyserling also deposited material in BMNH and the male specimen examined here was from Serra Vermella, Brazil. It is possible that both Levi and Keyserling were wrong in synonymizing the *D. alta* from Peru (PAS) with the specimens of "*D. alta*" (and *E. lutea*) from Brazil (BMNH). If this were so, then the BMNH specimens and some of the others which are referred to as "*D. alta* Keyserling" in this paper, would be correctly named "*D. lutea* (Keyserling)". The two male spiders which I examined from Peru (AMNH - see end of "Records" section) were quite different from all the others described and illustrated in this paper, and if the foregoing remarks are found

to be correct, these may prove to be the true "*D. alta*". Although somewhat irritating, this uncertainty makes little difference to the present paper which shows that "*D. alta*" probably comprises several species which will require further study in any case.

The types of *D. alta* and *E. lutea* in BMNH were examined, and a single vial containing "*D. alta*," collected from the Panama Canal Zone, was borrowed from the Museum of Comparative Zoology, Harvard University (MCZ). It was apparent, however, that the MCZ vial contained two distinct species—*D. alta* and *D. lineatipes*.

The species from Aldabra, which initiated this work, appears to be new to science and will be described in another paper in preparation.

In order to establish the degree of variation between individual specimens from the same locality, as well as any geographical variations, it was necessary to examine as many specimens as possible of both species. Accordingly, all specimens of *D. alta* and *D. lineatipes* in both MCZ and the American Museum of Natural History (AMNH), and the type of *D. lineatipes* were borrowed for study.

Preliminary checking through the collections confirmed that *D. alta* and *D. lineatipes* are quite separate species, despite both showing considerable individual variation in somatic and genitalic structure.

It was obvious at this stage that in order to demonstrate effectively the differences between the species, it would be necessary to illustrate fairly profusely.

*D. alta* shows much more individual variation than *D. lineatipes*. A great deal of variation may be seen in specimens collected together. On the other hand, some specimens from widely separated geographical areas appear identical.

One new species, close to *D. lineatipes*, was found in the collections from Jamaica and Panama and is described here.

These spiders seem so far to have been rather rarely collected, and the answers to many of the questions raised in this paper must await the collection of further material. It is hoped, however, that as well as being a permanent record of the specimens in MCZ and AMNH, this work will provide a reasonable basis for (and a stimulus for) further study.

## METHODS

All the drawings of spiders, palpi and epigynes were made to the same scale, precisely, as indicated for figures 1 to 6.

For the purpose of making the drawings, it was so arranged that the author was unaware of the place of origin of each specimen as it was being drawn. It was felt that an accurate drawing could best be made without knowledge of collection data possibly having an influence on the subjective interpretation of structure.

The vials were worked through, and a drawing was made in each case if the specimen did not closely resemble drawings already made. At the end of this, all the drawings were compared. Finally, the drawings were checked against the data in the vials and all the specimens were worked through again, in order to test the opinions arrived at.

Female genitalia were cleared by taking the specimen through to 100% ethanol and then immersing in clove oil. The details of seminal receptacles and ducts were very easily seen in all specimens so treated.

Care was taken to ensure that all epigynes and palpi were drawn from the same viewpoint. The male palpi of *Dipoena* species are frequently held in a rotated position, so

that the ventral aspect faces ectally, and this should be taken into account when comparing the drawings with actual specimens. The left male palpus is figured in each case.

For convenient reference all the illustrations have been grouped together at the end of the work.

*Dipoena alta* Keyserling  
Figs. 1-57, 107, 111-114

*Dipoena alta* Keyserling, 1886: 45, pl. 12, fig. 159. The male type from Montaña de Nancho, Peru, in PAS was unobtainable for study, and Keyserling's male from Serra Vermella, Brazil (BMNH) is illustrated here (see Introduction, para. 2)

*Euryopsis lutea* Keyserling, 1891: 227, pl. 9, fig. 168. Female type from Serra Vermella, Brazil. BMNH.

The types of *D. alta* and *E. lutea* are illustrated by Figures 1-6.

**Description** (male from Panama Canal Zone, Summit, August 1950. Coll. Chickering).—Carapace as in Figs. 34, 37, 40 and 41 and identical with that of the type (Fig. 6). Color orange. Sternum orange. Legs orange and devoid of markings. Abdomen somewhat pointed posteriorly and with a scutum. Color of abdomen pale yellowish; scutum orange. Sooty markings as illustrated and black markings present on each side of spinnerets. Total length 1.68mm. Carapace length 0.84mm; width 0.70mm; height 0.66mm.

Leg measurements (in mm):

	Femur	Tibia + Patella	Metatarsus	tarsus
I	0.60	0.68	0.34	0.24
II	0.50	0.66	0.30	0.24
III	0.54	0.54	0.28	0.22
IV	0.74	0.86	0.40	0.33

Male palp as in Figs. 35-36, 38, 39.

Females from the same locality have similar coloration to males and the general appearance is as in Fig. 7. Female epigyne and genitalia Figs. 8-9.

**Variation in females.**—Figures 7-21 are of specimens from various localities in Panama Canal Zone, and show considerable size differences. The larger females (Figs. 7-9) were present in collections from Summit as well as from Barro Colorado Island, and might represent a separate species. Specimens from the Forest Reserve were found to be quite markedly smaller (Figs. 16-18) and the epigyines of some specimens from the Experimental Gardens have the connecting ducts widely separated where they meet the sclerotized spot (Figs. 19-21).

Brazilian specimens seem to fall into two groups; those which are close to specimens from Panama Canal Zone (Figs. 22-24), and a rather distinctive form with a yellow abdomen, clearly marked with black, and genitalia which differ in the way the connecting ducts curve around to join the first seminal receptacles (Figs. 25-27). It may be a separate species.

Specimens from Trinidad (Figs. 28-33) show slight differences in general appearance and the genitalia seem close to those of the smaller females from Panama Canal Zone (Figs 10-15). Females from Ecuador have a similar appearance.



**Variation in males.**—The two males in Figs. 34-39 were collected together from Panama Canal Zone, Barro Colorado Island, and illustrate what could be male dimorphism. (Prof. H. W. Levi comments that the differences between the two male forms could be due to one having had one more moult to become adult than the other.) These two forms occur frequently together and no intermediates were seen. The larger form (Figs. 34-36, 40, 41, 113, 114) has the scutum covering practically the whole of the dorsal abdomen and has a generally robust appearance. The palpi are of a fairly constant size and conformation, and the conductor, radix and embolus tip show little variation in specimens of this particular form. The smaller form (Figs. 37-39, 111, 112) has the scutum covering only the anterior part of the dorsal abdomen and appears slightly less robust in general. The palpi in specimens of this smaller form also are of fairly constant size and conformation, and differ from those of the large form principally in the form of the conductor, radix and embolus tip, and in being slightly smaller. It is this smaller form which is identical to the male type of *D. alta* (Figs. 1, 2, 6).

As already stated, specimens of these two male forms occur together and are distinct in somatic and palpal structure, without intermediates occurring. It has already been noted that the females from the same locality also show some variation in size and genitalic structure and it seems possible that there are two distinct species. One could match the males and females and suggest that Figs. 7-9 (females) and 34-36 (males) represent one species, and Figs. 10-15 (females) and 37-39 (males) represent a separate species—the true *D. alta* (or *D. lutea* if Keyserling and Levi were wrong with the Peruvian type).

If one turns to the males from the Experimental Gardens, Panama Canal Zone (Figs. 42-45) it can be seen that these specimens are smaller still. The abdominal scutum is less distinct, the palpi are smaller and the conductor, radix and embolus tip differ from the previous two forms. Again, no intermediates were seen. Specimens exactly like these were also found from the Forest Reserve, Panama Canal Zone, and one could therefore match these males with the females in Figs. 16-18 and possibly create another distinct species.

Similarly, the Brazilian males were seen to occur in two distinct forms. Although the large form (Figs. 46-48, 52-54) appears to be somewhat variable itself, it differs quite markedly from the small form (Figs. 49-51) and again, these males could perhaps be matched with the females in Figs. 22-27 to give another two species.

The Trinidadian males (Figs. 55-57) appear close to the Panama Canal Zone males in Figs. 37-39.

In this group of spiders one would expect to be able to distinguish between the males of closely related species far more readily than the females. It is the author's view that the differences between the various males described here are not due to male dimorphism; nor are they a reflection of simple individual or geographic variation. It is also likely that the slight differences between the various females are of significance, and are related to those seen in males. Future investigation, when sufficient additional material has been collected, will almost certainly confirm that *D. alta* comprises several distinct species.

*Dipoena lineatipes* Bryant

Figs. 58-87, 108-110

*Dipoena Lineatipes* Bryant, 1933: 174, fig. 7. Female type from Florida, Royal Palm Park, (now Royal Palm Area, Everglades National Park) March 1930. MCZ.



The epigyne and internal genitalia of the female type specimen are illustrated by Figs. 58-59. The specimen is in rather poor condition, but the leg markings are clearly visible.

**Descriptions** (specimens from Panama Canal Zone, Summit, 1950. Coll. Chickering).—Carapace (Figs. 60-62) orange; slightly darker on head in both sexes and thickly suffused with black around the anterior eyes. Sternum yellow-orange with faint sooty markings around margin. Legs yellow-orange with distinct sooty markings in the form of a line running dorsally along the length of the tibiae and metatarsi. These markings, which are very useful diagnostically, are usually most marked on the fourth tibiae, and sometimes reduced on leg III. The leg markings are present in both sexes. Abdomen grey to black, but with posterior end, above the spinnerets, paler in color - even pale yellow in some specimens. The male has a dorsal scutum which is orange-brown in color. Ventrally, abdomen paler, with faint darkening lateral to spinnerets. Total length of female 1.7mm; carapace 0.62mm. Total length of male 1.32mm; carapace 0.64mm long, 0.60mm wide and 0.48mm high. Leg measurements:

## Male:

	Femur	Tibia + patella	Metatarsus	tarsus
I	0.52	0.60	0.34	0.24
II	0.46	0.53	0.30	0.23
III	0.50	0.52	0.26	0.24
IV	0.64	0.74	0.36	0.27

## Female:

	Femur	Tibia + patella	Metatarsus	tarsus
I	0.56	0.57	0.34	0.24
II	0.52	0.58	0.32	0.23
III	0.51	0.56	0.27	0.23
IV	0.70	0.80	0.38	0.30

Female genitalia Figs. 64-65, 76-77. Male palpus Figs. 85-86.

This species shows much less variation than *D. alta*. The linear markings on the legs were present in all specimens examined, for all locations, despite the fact that many had been in spirit for over forty years.

**Variation in females.**—The epigynes of females from Panama Canal Zone were, in general, as in Figs. 64, 65, 76, 77, although occasional Florida specimens (Figs. 70-71) were seen to be almost identical. The majority of Florida specimens appeared as in Figs. 58, 59, 67, 68. Some specimens resembling these were also seen from Panama Canal Zone. One specimen from Brazil (Figs. 78-80) was found to be practically identical to the usual Florida form in Figs. 67-68. The specimens from North Carolina (Figs. 72-74), as well as being slightly smaller, differ from all other examples of this species in the way that the connecting ducts curve around to join the first pair of seminal receptacles.

**Variation in males.**—Males seemed to vary very little in either somatic structure or size. The palpi (Figs. 82, 83, 85-87, 109 110) show slight variation in both the course of the ducts and in the conductor and radix, but this variation occurs just as much in specimens

from the same area as in specimens from different localities, and various intermediate combinations of palpal structure also occur. The palpi are, however, constant in size.

*Dipoena jamesi*, new species

Figs. 88-106, 115, 116

This species is named after Mr. H. I. James, botanist and formerly biology master at the Dixie Grammar School, Market Bosworth, England.

**Description of holotype female.**—From British West Indies, Jamaica; Blue Mountains, Hardwar Gap. November 1957. Coll. A. M. Chickering. Deposited in M.C.Z.

Carapace deep orange with sooty markings on cephalic part and black around the anterior eyes. Sternum yellow-orange with faint sooty margin. Abdomen yellowish-grey with dark grey to black markings as illustrated. The darker areas extend around the sides. Ventrally, pale yellowish-grey. Legs orange-brown; femora and tibiae I and II suffused with dark brown. Total length 1.56mm; carapace 0.62mm. Leg measurements:

	Femur	Tibia + patella	Metatarsus	tarsus
I	0.65	0.66	0.36	0.24
II	0.60	0.66	0.34	0.24
III	0.56	0.56	0.30	0.24
IV	0.74	0.90	0.43	0.30

Female epigyne and genitalia figs. 89-90.

**Description of allotype male.**—Collected with the holotype female. Carapace deep orange with cephalic region darker and black markings around the anterior eyes. Sternum as in female. Abdomen colored as the female, but with a pale orange scutum in addition. Legs orange-brown; tibiae and patellae I and II suffused with dark brown ventrally. Total length 1.38mm. Carapace 0.62mm long, 0.58mm wide and 0.50mm high. Leg measurements:

	Femur	Tibia + patella	Metatarsus	tarsus
I	0.60	0.62	0.34	0.22
II	0.54	0.64	0.30	0.22
III	0.53	0.54	0.30	0.23
IV	0.66	0.78	0.36	0.30

Male palpus Figs. 101, 102.

Eight male and seven female paratypes were collected with the types.

**Variation.**—Little variation in the size or coloration of either sex was observed. The female from Panama, El Volcán (Figs. 97-99) differs no more from the Jamaican specimens than the latter do from one another. No males were found in the collections from Panama, but the Jamaican males showed only slight variation in palpal structure.

*Diploena furtiva* Chickering

*Diploena pallida* Chickering, 1943: 364, figs. 50, 51. Female holotype from Barro Colorado Island, Panama Canal Zone. MCZ. Preoccupied by *Diploena pallida* Emerton (1913).

*Diploena furtiva* Chickering in Roewer, 1951: 455. New name for *D. pallida* Chickering, 1943 (preoccupied); Levi, 1953: 3, fig. 18 (female).

Levi's 1953 figures of *D. furtiva* genitalia appear to be those of *D. alta*. Two vials borrowed from MCZ were labelled as "*Diploena pallida* sp. nov. paratype female" and in each was a second label "*D. furtiva* Chick." One specimen, from Porto Bello, appears close to *D. barro* Levi, and the other, from Fort Davis, is a specimen of *D. alta* similar to Figs. 10-15.

COMPARATIVE DESCRIPTIONS OF *D. ALTA*, *D. LINEATIPES* AND *D. JAMESI*

Figures 107-116 explain the terms used in the discussion of the genitalia.

In general, the drawings in this paper should make future identification of specimens easy. *D. alta* may comprise several species.

Both sexes of *D. lineatipes* may be easily distinguished from *D. alta* and *D. jamesi* by the linear sooty markings on the dorsal aspect of the legs. This feature seems, perhaps surprisingly, to be reliable and to withstand long preservation. Some *D. alta*, particularly smaller specimens, may have appreciable darkening of the tibiae, but this is never in the form of a dorsal line. *D. jamesi* frequently has sooty markings on the legs which sometimes take the form of a line on the ventral, but not the dorsal aspect of the legs.

The female genitalia of *D. lineatipes* and *D. jamesi* appear, especially when cleared, to have the sclerotized spot ("X" in Fig. 108) separate from the external openings of the connecting ducts, and the line of separation seems to extend laterally for a short distance. No such division of the structure is seen in *D. alta* genitalia. The posterior lip of the epigyne tends to be thinner and closer to the epigastric fold in *D. lineatipes* and *D. jamesi* than in *D. alta*. The way in which the connecting ducts curve backwards from their most anterior point to join the first pair of seminal receptacles was at first thought to be of significance. In *D. alta* they curve inwards, in *D. lineatipes* outwards, and in *D. jamesi* they take an intermediate course. However, exceptions to this can be seen in Fig. 27 (for *D. alta*) and in Fig. 74 (for *D. lineatipes*). This feature might be of use in future work on *D. alta*. The female genitalia of *D. jamesi* differ from those of *D. lineatipes* not only in the course of the ducts, but also in the fact that the first pair of seminal receptacles are *spherical and relatively smaller*.

The shape and markings of the carapace are useful in separating the males of the three species, and even small specimens of *D. alta* (e.g. Figs. 42-43) can be distinguished from *D. lineatipes* and *D. jamesi*. When the male carapace of *D. alta* is viewed laterally, (Figs. 41, 43) the clypeus is more or less straight and is parallel to the slope posteriorly, irrespective of the overall size of the spider. In both *D. lineatipes* (Fig. 61) and *D. jamesi* (Fig. 104), the clypeus appears slightly concave when viewed laterally, and the lines representing the clypeus and posterior border converge if produced dorsally, especially in *D. jamesi*. It is difficult to put into words the differences between the male carapaces of *D. lineatipes* and *D. jamesi* as seen from a dorsal view. However, Figs. 81, 84 and Figs. 100, 103 will be found surprisingly useful when it comes to comparing them with specimens. The small black mark lying in the "bottom" of the "U" (anterior to the longitudinal line) is only present in *D. jamesi*.



The male palpi of *D. alta* are easily distinguished from those of *D. lineatipes* and *D. jamesi* by reference to the illustrations, and nearly always by their greater size. The palpi of *D. jamesi* are most easily distinguished from those of *D. lineatipes* and *D. alta* by the large notch in the subtegulum - "N" in Fig. 116. Also the radix in *D. jamesi* has a spatulate tip, whereas in *D. lineatipes* it is pointed. The tip of the embolus is often visible in *D. alta* specimens, but not usually in *D. lineatipes*. In *D. jamesi* the embolus tip was quite prominent in all specimens seen.

## RECORDS

The following is a complete list of the specimens examined from MCZ and AMNH and for each is given the locality, date, collector, museum and the name of the species in the vial. In addition, reference to the illustrations in this paper is given - eg. "female Figs. 7 - 9," where the specimen was the actual one drawn, or "2 females as figs. 7 - 9" where the specimens in the vial closely resemble the figures. It was felt that this would be of greater potential value to further study, especially of the *D. alta* variants, than a distribution map. The information is put into paragraph to save expense and is arranged roughly from North (U.S.A.) to South (Brazil).

U.S.A.: **NORTH CAROLINA**: Beaufort; Lennox Point, AMNH, *lineatipes* female Figs. 72 - 74. **ALABAMA**: Baldwin Co., Jackson Oak: Jan. 1941, Archer, AMNH, *lineatipes* female as figs. 66 - 68; Baldwin Co., Gasque: June 1950, Archer, AMNH, *lineatipes* female as figs. 66 - 68. **TEXAS**: Houston: June 1936, Mulaik, AMNH, *lineatipes* male as figs. 81 - 83. **LOUISIANA**: Greenburg: March 1936, AMNH, *lineatipes* female as figs. 66 - 68. **FLORIDA**: Alachua Co.: Nov. 1939, AMNH, *lineatipes* female as figs. 66 - 71 & males as figs. 81 - 87. Glades County, Fish Eating Creek: Feb. 1951, Nadler, AMNH, *lineatipes* female as figs. 66 - 68. Highlands Hammock, State Park: Feb. 1951 Nadler, AMNH, *lineatipes* male Fig. 87. Lake Istokpoga (3 - 5 miles South of): Dec. 1950, Nadler, AMNH, *lineatipes* female as figs. 66 - 68; Feb. 1951, Nadler, AMNH, *lineatipes* females as figs. 66 - 71 & males as figs. 81 - 83. Lake Placid, Archbold Biol. Sta.: Feb. 1951, Nadler, AMNH, *lineatipes* male as figs. 81 - 83. Kendall: Dec. 1950, Nadler, AMNH, *lineatipes* female as figs. 66 - 68 & male as figs. 84 - 86; Jan 1951, Nadler, AMNH, *lineatipes* male as figs. 84 - 86 & male as figs. 81 - 83; Feb. 1951, Nadler, AMNH, *lineatipes* female as figs. 66 - 68 & male as figs. 81 - 83; Nov. 1952, Nadler, AMNH, *lineatipes* male as figs. 81 - 83 & male as figs. 84 - 86; Nov. 1952, Nadler, AMNH, *lineatipes* females Figs. 66 - 71 and as figs. 62 - 65 & 75 - 80, & male Figs. 81 - 83 and as figs. 84 - 87; Mar. 1953, Nadler, AMNH, *lineatipes* female as figs. 66 - 71; Mar. 1953, Nadler, AMNH, *lineatipes* male as figs. 81 - 83; Mar. 1953, Nadler, AMNH, *lineatipes* females as figs. 66 - 71 & males as figs. 81 - 83. Myakka River, State Park: Dec. 1963, Ivie, AMNH, *lineatipes* male as figs. 81 - 83. Sarasota: Dec. 1950, Nadler, AMNH, *lineatipes* females as figs. 66 - 71 & 78 - 80. **JAMAICA**: Blue Mts., Hardwar Gap: Nov. 1957, Chick., MCZ, *jamesi*, 8 females Figs. 88 - 93 & 9 males Figs. 100 - 106; June 1958, Sanderson, MCZ, *jamesi* females as figs. 88 - 93; Nov. 1959, Nadler, AMNH, *jamesi* females Figs. 94 - 96. St. Andrews par., Morces Gap: July 1958, Sanderson, MCZ, *jamesi* males as figs. 100 - 102. **TRINIDAD**: Simla: Dec. 1954, Nadler, AMNH, *alta* female Figs. 28 - 30; Dec. 1954, Nadler, AMNH, *alta* male Figs. 55 - 57; April 1964, Chick., MCZ, *alta* females Figs. 31 - 33. **PANAMA**: El Volcán: Aug. 1950, Chick., MCZ, *jamesi* female Figs. 97 - 99. Panama Canal Zone: Barro Colorado Island: July 1939, Chick., MCZ, *alta* female Figs. 13 - 15; July 1939, Chick., MCZ, *alta* female as figs. 7 - 9; June 1950, Chick., MCZ, *alta*, female Figs. 7 - 9; April 1953, Nadler, AMNH, *alta* females as figs. 7 - 12 & males as figs. 34 - 36; July 1954, Chick., MCZ, *alta* female as figs. 7 - 9; July 1954, Chick., MCZ, *alta* male as figs. 34 - 36; July 1954, Chick., MCZ, *alta* males Figs. 34 - 36 & Figs. 37 - 39; July 1954, Chick., MCZ, *alta* males as figs. 34 - 36; Aug. 1954, Chick., MCZ, *alta* male as figs. 37 - 39; Dec. 1957, Chick., MCZ, *alta* male as figs. 34 - 36; Mar. 1958, Chick., MCZ, *alta* female Figs. 10 - 12; May 1964, Chick., MCZ, *alta* female as figs. 13 - 15 & male as figs. 37 - 39. Panama Canal Zone, Experimental Gardens: July 1954, Chick., MCZ, *alta* males Figs. 42 - 45 & male as figs. 37 - 39; July 1955, Chick., MCZ, *alta* female Figs. 19 - 21; July 1955, Chick., MCZ, *alta* male as figs. 34 - 36, 3 males as figs. 42 - 45 & female as figs. 19 - 21; *lineatipes* male as figs. 84 - 86. Panama Canal Zone, Forest Reserve: Dec. 1957, Chick., MCZ, *alta*

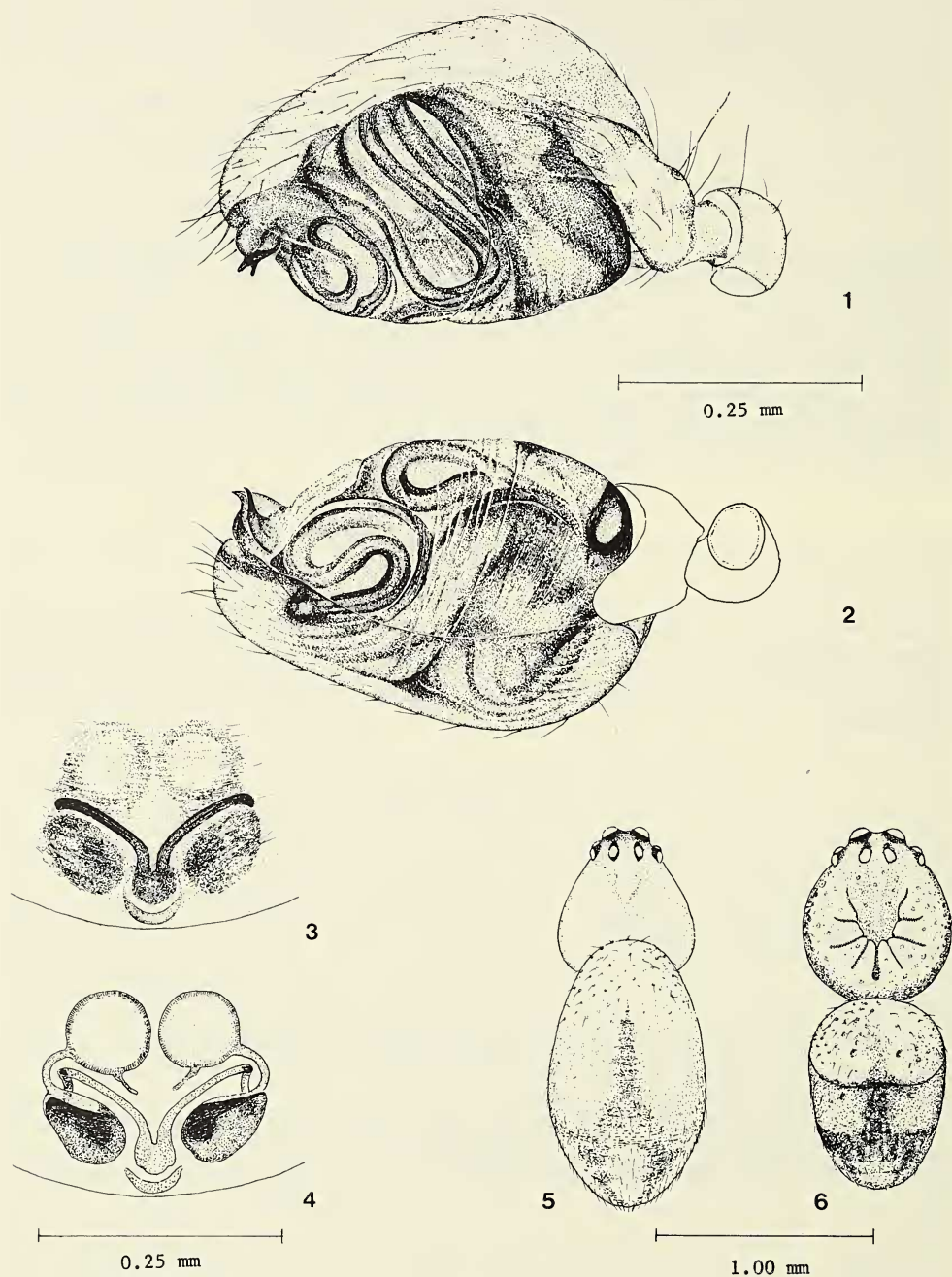
female Figs. 16 - 18 & male as figs. 42 - 45. Panama Canal Zone, Summit: July 1950, Chick., MCZ, *alta* female as figs. 7 - 9; July 1950, Chick., MCZ, *alta* males as figs. 34 - 36; July 1950, Chick., MCZ, *alta* females as figs. 7 - 9; July 1950, Chick., MCZ, *lineatipes* female as figs. 75 - 77; Aug. 1950, Chick., MCZ, *alta* males as figs. 34 - 36 & *lineatipes* female Figs. 75 - 77; Aug. 1950, Chick., MCZ, *alta* males as figs. 34 - 36 and *lineatipes* males & females Figs. 84 - 86 and Figs. 60 - 65. **ECUADOR:** El Oro: Río Jubones, Pasaje: Oct. 1942, Wells, MCZ, *alta* female as figs. 31 - 33 & males as figs. 37 - 39. **BRAZIL:** Campo Grande: Jan. 1959, Nadler, AMNH, *alta* male as figs. 52 - 54 except that the abdomen has only a short median mark & lacks the dark areas on each side of the posterior abdomen. Espírito Santo, Santa Teresa: Jan. 1959, Nadler, AMNH, *alta* females Figs. 25 - 27 & males Figs. 46 - 51. Rio de Janeiro, Botanical Gardens: Jan. 1959, Nadler, AMNH, *alta* females Figs. 22 - 24 and *lineatipes* female Figs. 78 - 80. São Paulo, Forest Reservation: Jan. 1959, Nadler, AMNH, *alta* 1 male as figs. 46 - 48 and one intersex, with complete male somatic development, but with rudimentary male palpi and female epigyne; Jan. 1959, Nadler, AMNH, *alta* female as figs. 25 - 27. **PANAMA CANAL ZONE:** Barro Colorado Island: July 1934, MCZ, female labelled as "*D. alta*" which it is not. It may be *D. barro* Levi. Fort Davis: Aug. 1936, labelled "*Dipoena pallida* sp. nov. paratype female" and "*Dipoena furtiva* Chick." is *alta* female as figs. 10 - 15. Porto Bello: labelled "Aug. 1936, *Dipoena pallida* sp. nov. paratype female" and "*Dipoena furtiva* Chick." is neither *alta* or *lineatipes*. It appears close to *D. barro* Levi. **PERU:** Divisoria, Dept. of Huanuco: Sept/Oct. 1946; Two vials; F. Woytkowski, AMNH; Contain male spiders in poor condition which are quite different from the species illustrated in this paper. (See "Introduction," paragraph 2.)

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#### LITERATURE CITED

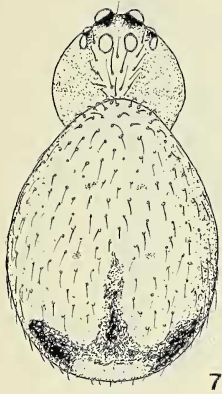
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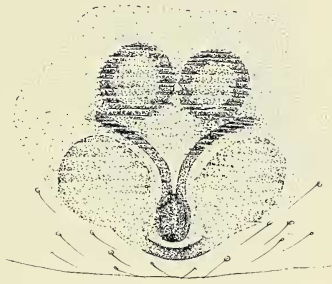
Figs. 1, 2, 6.—*D. alta* male type: 1, palpus, ectal view; 2, palpus mesal view; 6, carapace and abdomen, dorsal view.

Figs. 3, 4, 5.—*E. lutea* female type: 3, epigyne; 4, female genitalia; 5, carapace and abdomen.

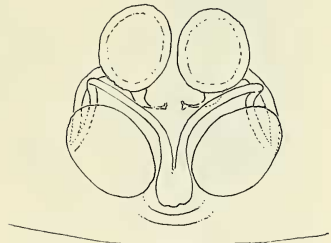




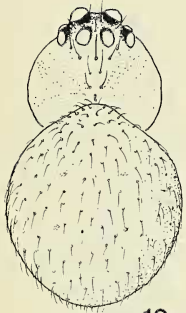
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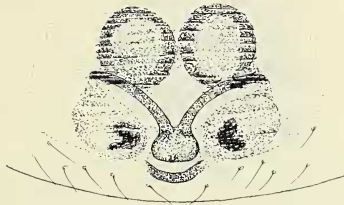
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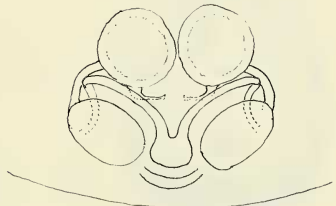
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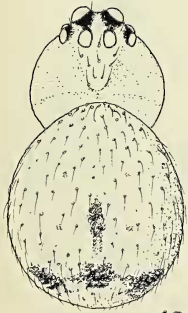
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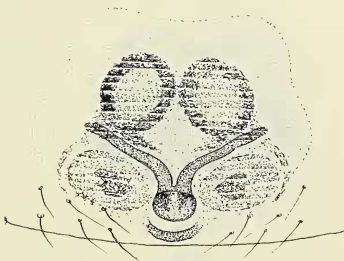
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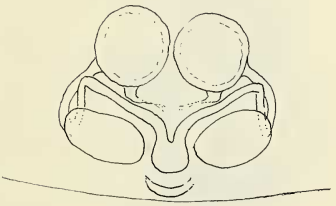
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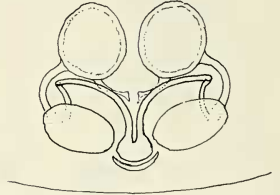
Figs. 7 - 15.—*D. alta* females, epigynes and genitalia from Panama Canal Zone, Barro Colorado Island.



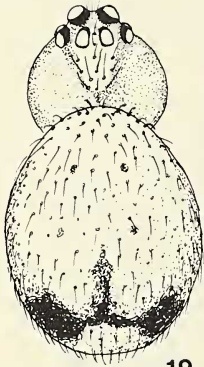
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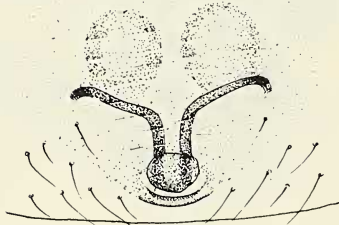
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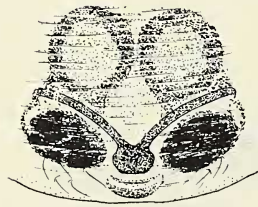
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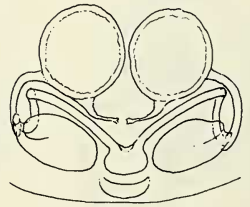
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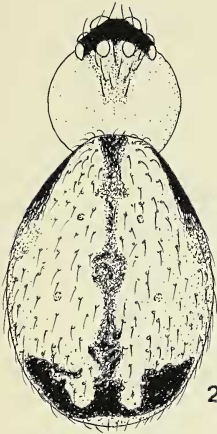


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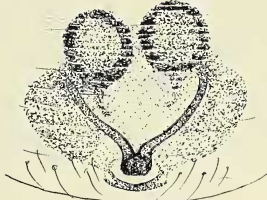


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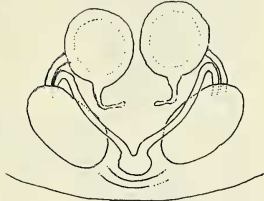
Figs. 16 - 18.—*D. alta* female, epigyne and genitalia from Panama Canal Zone, Forest Reserve. Figs. 19 - 21.—*D. alta* female, epigyne and genitalia from Panama Canal Zone, Experimental Gardens. Figs. 22 - 24.—*D. alta* female, epigyne and genitalia from Brazil, Rio de Janeiro, Botanical Gardens.



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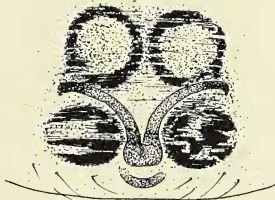
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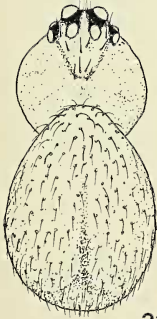
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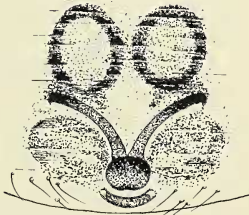
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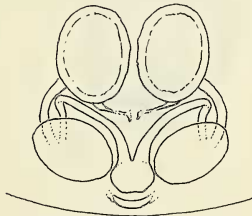
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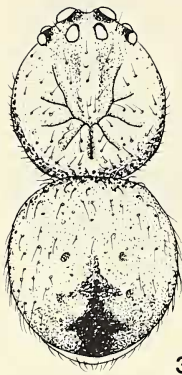
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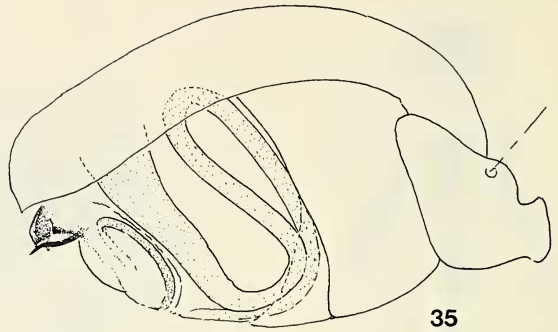
33

Figs. 25 - 27.—*D. alta* female, epigyne and genitalia from Brazil, Espirito Santo, Santa Teresa. Figs. 28 - 33.—*D. alta* females, epigyne and genitalia from Trinidad, Simla.

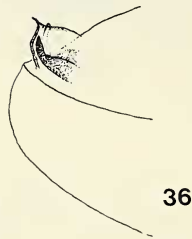




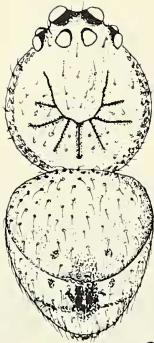
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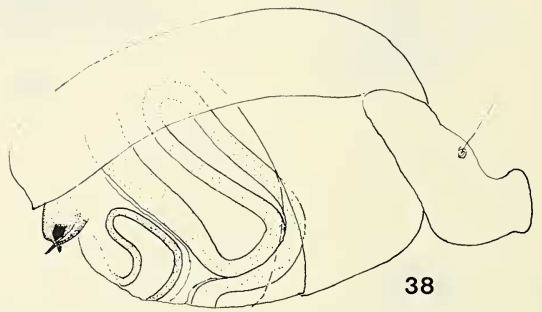
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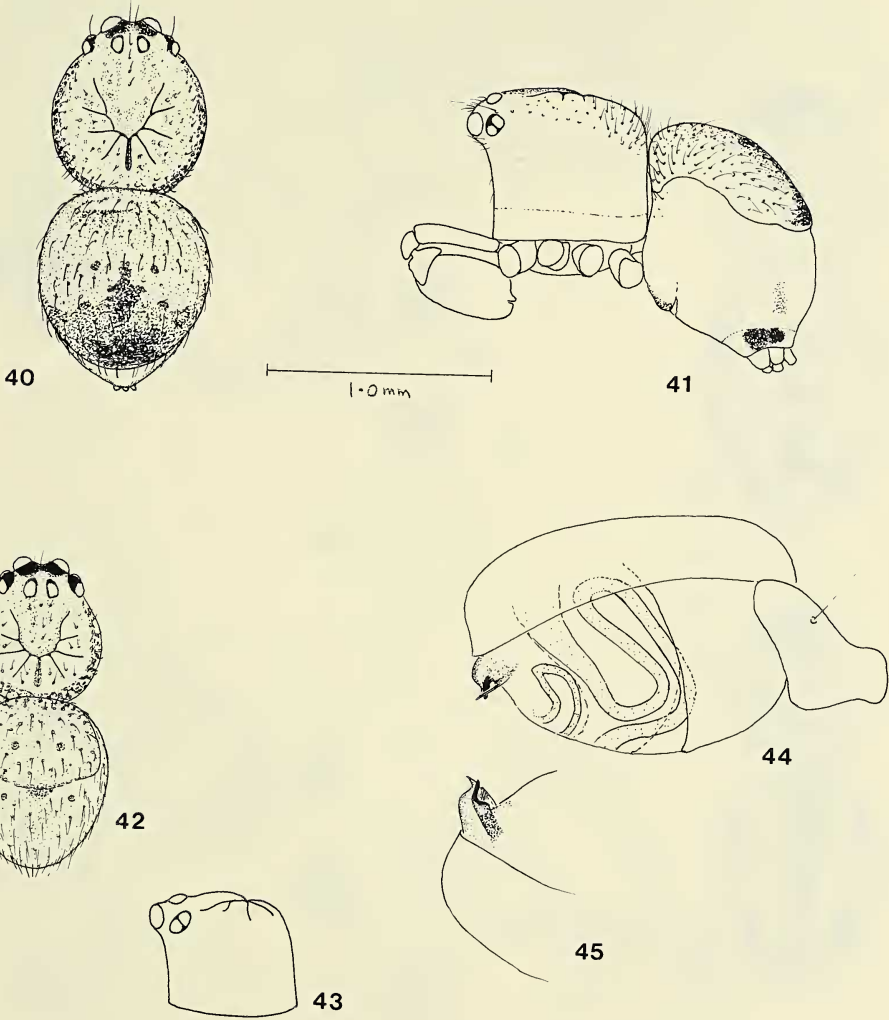


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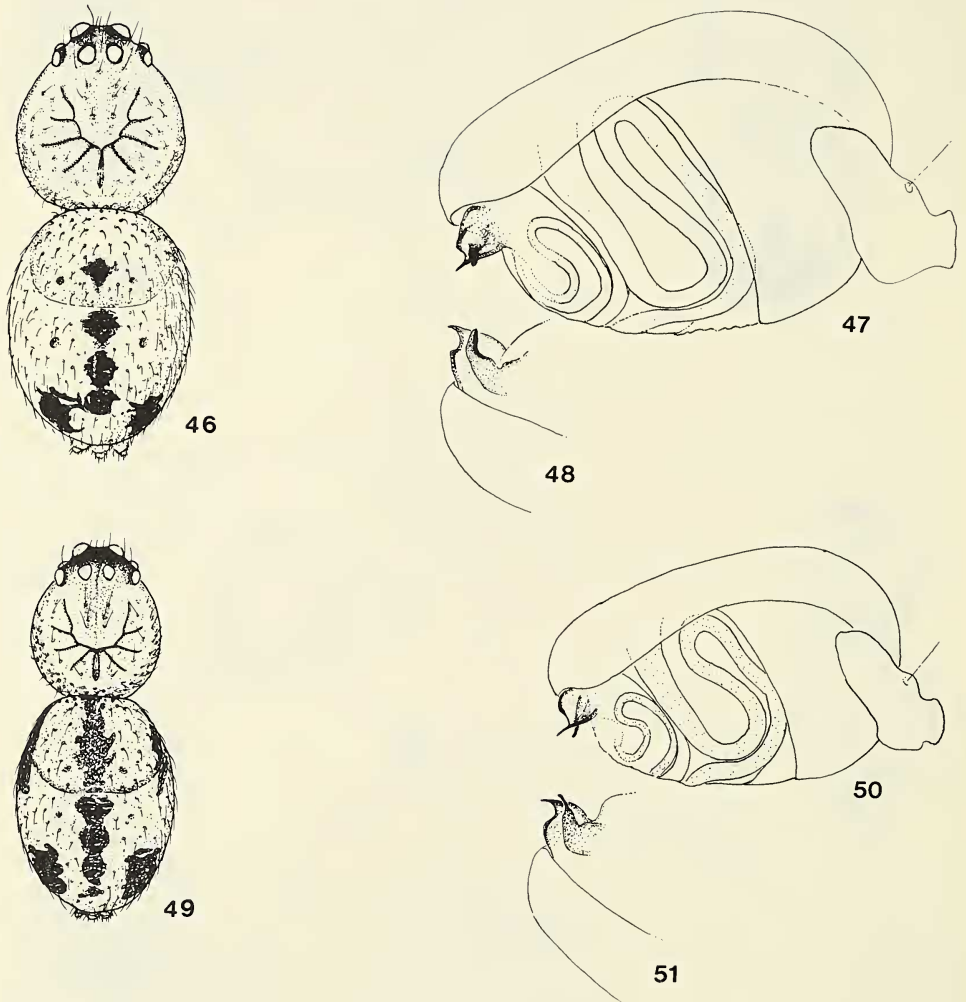


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Figs. 34 - 36.—*D. alta* male (large form) from Panama Canal Zone, Barro Colorado Island: 34, carapace and abdomen; 35, palp, ectal view; 36, palpal tip, mesal view. Figs. 37 - 39.—*D. alta* (small form) from Panama Canal Zone, Barro Colorado Island: 37, carapace and abdomen; 38, palp, ectal view; 39, palpal tip, mesal view.

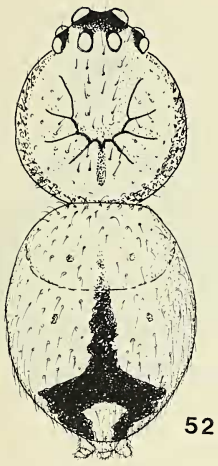


Figs. 40 - 41.—*D. alta* male (large form) from Panama Canal Zone, Summit: 40, dorsal; 41, lateral view. Figs. 42 - 45.—*D. alta* male from Panama Canal Zone, Experimental Gardens: 42, carapace and abdomen; 43, carapace, lateral view; 44, palpus, ectal view; 45, palpal tip, mesal view.

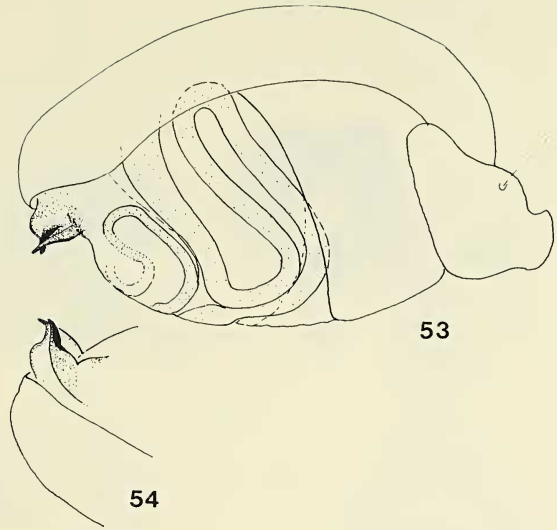


Figs. 46 - 48.—*D. alta* male (large form) from Brazil, Espírito Santo, Santa Teresa: 46, carapace and abdomen; 47, palpus, ectal view; 48 palpal tip, mesal view. Figs. 49 - 51.—*D. alta* male (small form from Brazil, Espírito Santo, Santa Teresa: 49, carapace and abdomen; 50, palpus, ectal view; 51, palpal tip, mesal view.



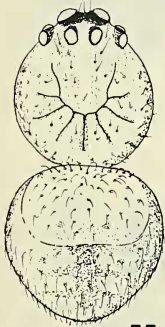


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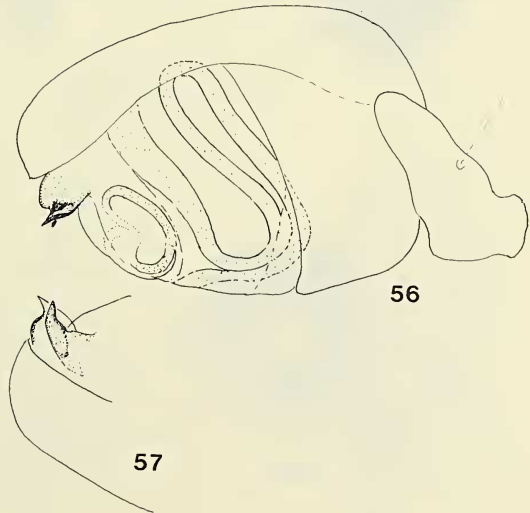


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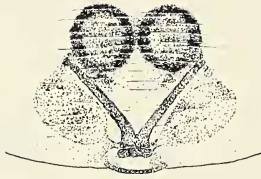
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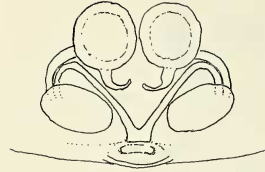
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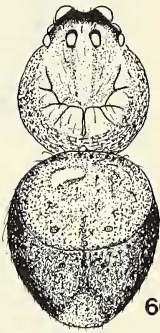
Figs. 52 - 54.—*D. alta* male from Brazil, Rio de Janeiro, Teresopolis: 52, carapace and abdomen; 53, palpus, ectal view; 54, palpal tip, mesal view. Figs. 55 - 57.—*D. alta* male from Trinidad, Simla: 55, carapace and abdomen; 56, palpus, ectal view; 57, palpal tip, mesal view.



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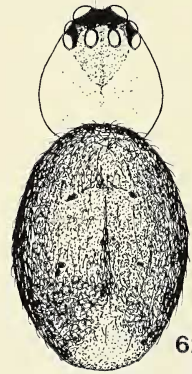
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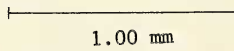
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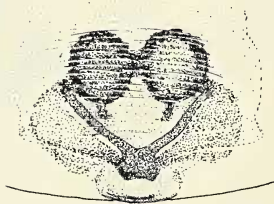
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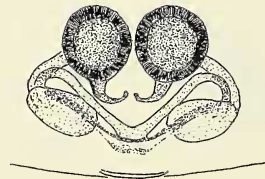
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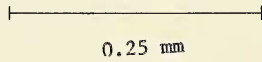
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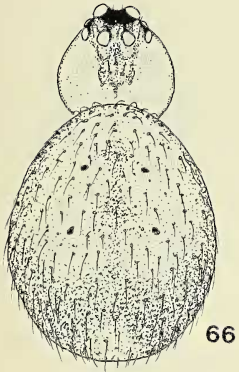


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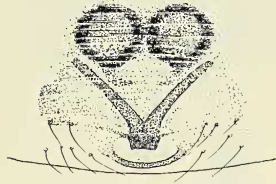


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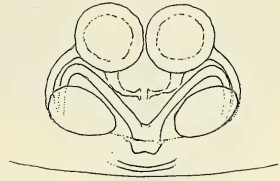
Figs. 58 - 59.—*D. lineatipes* type specimen, epigyne and genitalia. Figs. 60 - 65.—*D. lineatipes* from Panama Canal Zone, Summit: 60, male carapace and abdomen; 61, male carapace, lateral view; 62, female carapace and abdomen; 63, female carapace, lateral view; 64, epigyne; 65, genitalia.



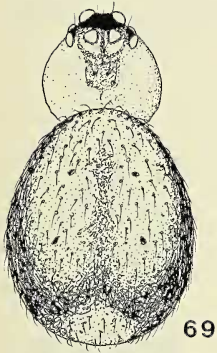
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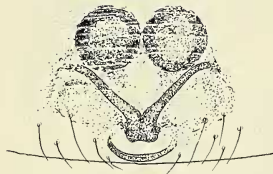
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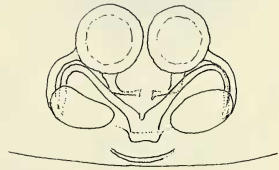
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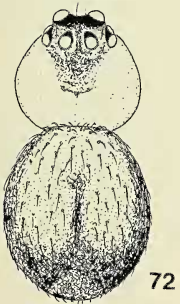
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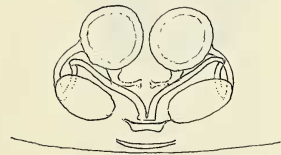
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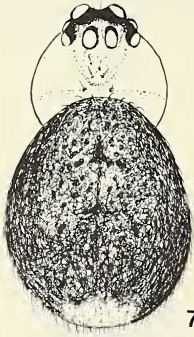
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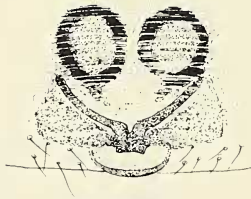
74

Figs. 66 - 71.—*D. lineatipes* females, epigynes and genitalia, from Florida, Kendall. Figs. 72 - 74.—*D. lineatipes* female, epigyne and genitalia from North Carolina, Lennox Point.

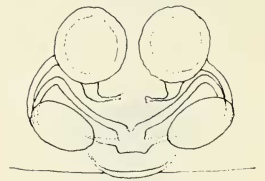




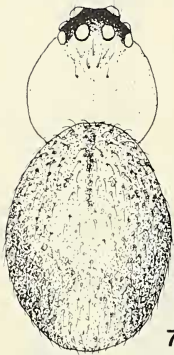
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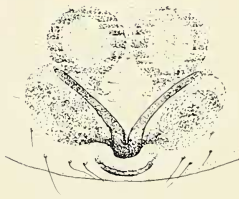
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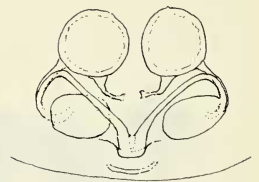
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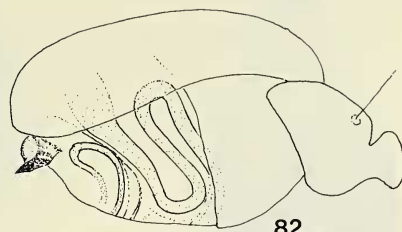


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Figs. 75 - 77.—*D. lineatipes* female, epigyne and genitalia, from Panama Canal Zone, Summit. Figs. 78 - 80.—*D. lineatipes* female, epigyne and genitalia, from Brazil, Rio de Janeiro, Botanical Gardens.



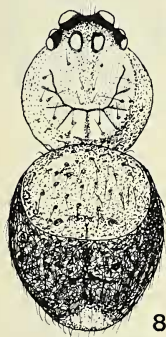
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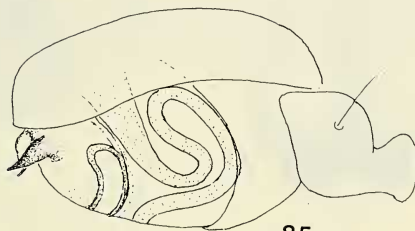
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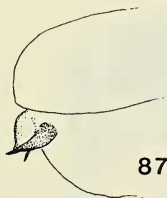
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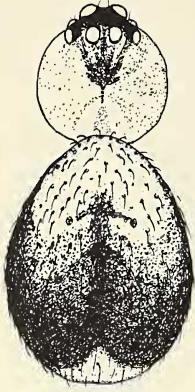


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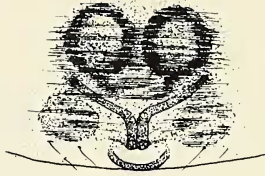


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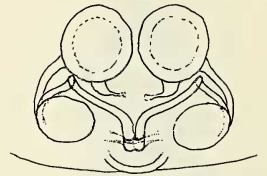
Figs. 81 - 83.—*D. lineatipes* male from Florida, Kendall; 81, carapace and abdomen; 82, palp, ectal view; 83, palpal tip, mesal view. Figs. 84 - 86.—*D. lineatipes* male from Panama Canal Zone, Summit; 84, carapace and abdomen; 85, palp, ectal view; 86, palpal tip, mesal view. Fig. 87.—*D. lineatipes* male; palpal tip, ectal view; from Florida, Highlands Hammock.



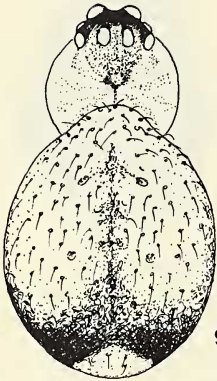
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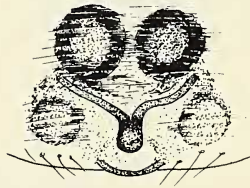
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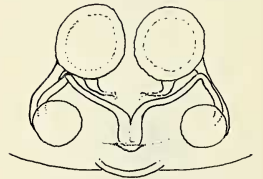
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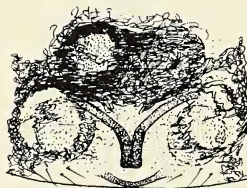
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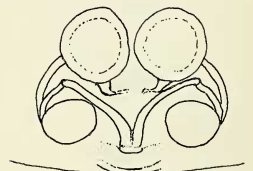
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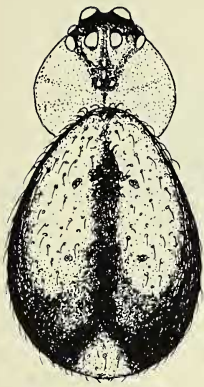
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Figs. 88 - 96.—*D. jamesi* females, epigynes and genitalia; from Jamaica, Blue Mountains, Hardwar Gap.

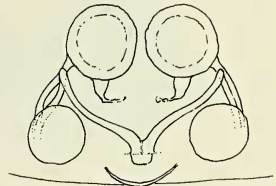




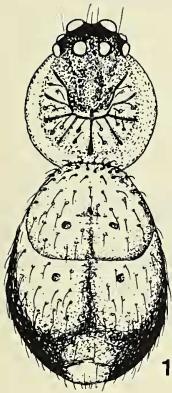
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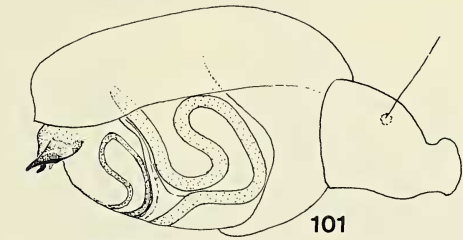
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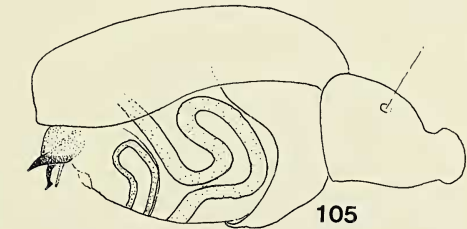
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Figs. 97 - 99.—*D. jamesi* female, epigyne and genitalia, from Panama, El Volcán. Figs. 100 - 106.—*D. jamesi* males, from Jamaica, Blue Mountains, Hardwar Gap: 100, 103, carapace and abdomen; 104, carapace, lateral view; 101, 105, palpus, ectal view; 102, 106, palpal tip, mesal view.

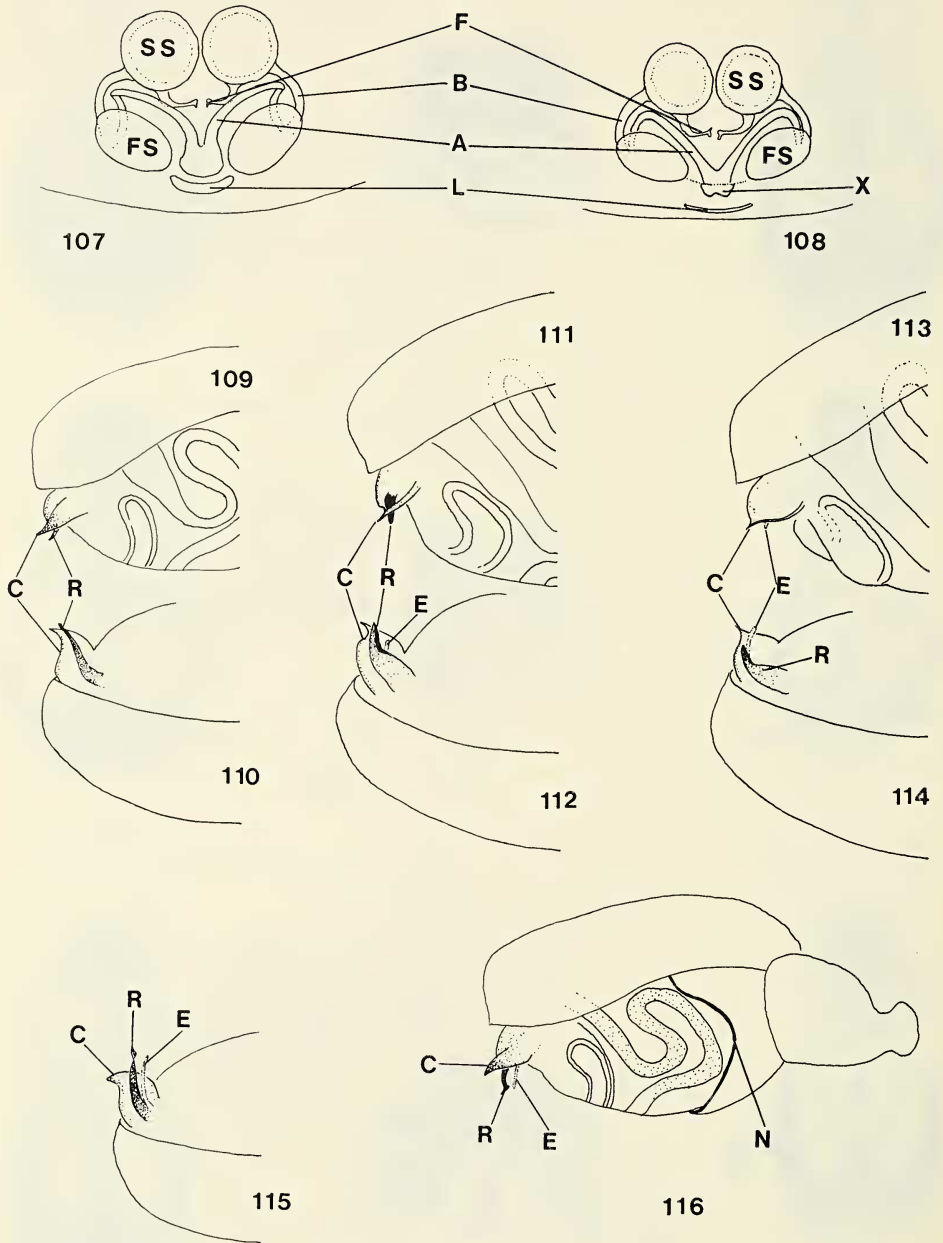


Fig. 107.—*D. alta* female genitalia. Fig. 108.—*D. lineatipes* female genitalia. Figs. 109, 110.—*D. lineatipes* male palpus. Figs. 111, 112.—*D. alta* male palp. Figs. 113, 114.—*D. alta* male palp. Figs. 115, 116.—*D. jamesi* male palp. Abbreviations: A - Connecting canal, B - Canal connecting first and second seminal receptacles, C - Conductor, E - Embolus, F - Fertilization duct, FS - First seminal receptacle, L - Posterior lip of epigyne, N - Notch in subtegulum, R - Radix, SS - Second seminal receptacle, X - See text.